FINAL SITE DISCOVERY REPORT
FOR
BEECH STREET FIREWORKS AREA (FORMER)
ROCKLAND, MASSACHUSETTS

Prepared For:
U.S. Environmental Protection Agency
Region I
Office of Site Remediation and Restoration
1 Congress Street, Suite 1100
Boston, MA 02114-2023

CONTRACT NO. 68-W-00-097

CERCLIS NO. Not Assigned
State ID NO. Not Assigned
TDD NO. 03-09-0004
TASK NO. 6410
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Submitted By:
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31 December 2003

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Work Order No. 20110-001-001-6410-70

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Rockland, Massachusetts

CERCLIS No. Not Assigned
State ID No. Not Assigned
TDD No. 03-09-0004
Work Order No. 20110-001-001-6410-50

INTRODUCTION

The Weston Solutions, Inc., Superfund Technical Assessment and Response Team 2000 (START) was requested by the U.S. Environmental Protection Agency (EPA) Region I, Office of Site Remediation and Restoration, to perform a Site Discovery (SD) of the Rockland Suspect Site in Rockland, Plymouth County, Massachusetts. During the SD for the Rockland Suspect Site, START discovered a former fireworks facility located at 254 Beech Street in Rockland, Massachusetts. On 11 December 2003, the EPA Site Assessment Manager requested the original site name, "Rockland Suspect Site", be changed to the "Beech Street Fireworks Area (Former)" (Beech Street Fireworks) site, which is the subject of this report. Therefore, some references included for this report refer to the "Rockland Suspect Site", and other references refer to the Beech Street Fireworks site.

Tasks conducted as part of the SD included compiling and reviewing information regarding properties within Rockland, Massachusetts that manufacture fireworks materials and use ammonium perchlorate (perchlorate) at their facility. All tasks were conducted in accordance with the technical specifications provided by EPA Region I in the Statement of Work (SOW) "Site Discoveries (SDs) for New England Fireworks Manufacturing Sites/Perchlorate Issues" dated 29 August 2003, and additional discussions with the EPA Site Assessment Manager and Task Monitor.

Study Objectives and Design

The objectives of the SD are to provide an operational and regulatory history of the Beech Street Fireworks site; to provide local public and private groundwater drinking water supply information; to provide a summary of previous groundwater and soil sampling for perchlorate which was performed in relation to the site; to provide geographic coordinates of the identified facility; to provide a description of the current observations noted for the facility during the off-site reconnaissance; and to determine whether current conditions at the Beech Street Fireworks site warrant inclusion into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database and further investigation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Sources of Information

Background information used in the generation of this report was obtained through file searches conducted at EPA, Massachusetts Department of Environmental Protection (MA DEP), the Massachusetts State Library, and the Town of Rockland, Massachusetts. Additional information was obtained through conversations with other Federal, State, and local agencies, town officials and persons knowledgeable of the Town of Rockland and the facility, and through available Internet database sources. Information regarding the current state of the site was gathered during an off-site reconnaissance conducted by START personnel on 6 November 2003. Table 1 summarizes the major sources of information used in the generation of this report.

Table 1

Major Sources of Information

Source	Visit/Conversation Date	Contact	Information Obtained
Brockton Water Department	7 October 2003	Mr. Bryan Creedon	Public drinking water supply information for the Town of Brockton.
East Bridgewater Water Department	31 October 2003	Mr. Scott McCann	Public drinking water supply information for the Town of East Bridgewater.
EPA Superfund Records Center	11 September 2003	Mr. Robert D'Amelio	No Superfund files were available for the "Rockland Suspect Site".
EPA RCRA Records Center	11 September 2003	Ms. Donna Jutras	No RCRA files were available for the "Rockland Suspect Site".
MA DEP Southeast Regional Office	30 September 2003; Internet Search	Mr. Jonathan Hobill	RTNs were found for National Coating Corporation (4-0000354 and 4-0010026). START obtained National Coating Corporation information during the National Fireworks I (CERCLIS No. MAD980908842) file review.
Rockland Fire Department	11 September 2003	Mr. Killinger	National Fireworks operated a facility near Beech Hill, off Beech Street, during World War II. This facility extended into the Town of Hanover. Current operators on the property may include National Coating, Globe Rubber Works, and T & T Machine.
Rockland Department of Health	16 September, 5 November, and 12 November 2003	Ms. Pat Donnelly	Private drinking water supply information for the Town of Rockland. No information regarding the Beech Street Fireworks site.
Rockland Historical Commission	16 September 2003	Voicemail	START left a voicemail message requesting information on the former fireworks facility located along Beech Street. START has not received a return telephone call to date.
Town of Rockland Tax Assessor's Office	16 September 2003 19 November 2003	Ms. Helen Murphy	The Tax Assessor's Office does not have old maps, Sanborn maps, or aerial photographs. Current property owner information for Lot Nos. 1 and 2 on Map 72 and Lot No. 2 on Map 76. Referred START to the Building Department and Conservation Department. Deed information and maps of the *Rockland Standard.*
Rockland Conservation Commission	16 September 2003	Ms. Mary Ryan	START left a message requesting information on the Beech Street Fireworks site. START has not received a return call to date.

Table 1

Major Sources of Information (Concluded)

Source	Visit/Conversation Date	Contact	Information Obtained
Town of Rockland Building Department	16 September 2003	Ms. Betty Burrill	Information regarding the Beech Street Fireworks site. Referred to the Hanover Town Hall.
Rockland Water Department	18 and 19 September 2003	Ms. Susan Schwenderman; Mr. Dan Callahan	Public drinking water supply information for the Town of Rockland.
State Fire Marshall's Office	26 September 2003 19 November 2003	Mr. Peter Senopoulos; Mr. Tim Rodrique	START faxed a request for information, as per conversation with Mr. Senopoulous and Mr. Rodrique. Mr. Rodrique informed START that there is no information in their archived records for the Beech Street Fireworks site.
Hanson Water Department	3 October 2003	Ms. Carol Svizzero	Public drinking water supply information for the Town of Hanson.
Town of Rockland's Town Clerk Office	5 November 2003	Employee of the Town Clerk's Office	The *Rockland Standard* is part of Associated Newspapers located currently at 800 Hingham Street.
Rockland Public Library	5 November 2003	Reference Librarian	The *Rockland Standard* is still currently in circulation and is archived on microfilm.
Hanover Department of Public Works	19 November 2003	Ms. Nancy Jacobson	Public drinking water supply information for the Town of Hanover.
Pembroke Department of Public Works	19 November 2003 20 November 2003	Ms. Donna Kawa	Public drinking water supply information for the Town of Pembroke.

Note: Other minor sources of information were researched and used in the production of this report (see reference list).

CERCLIS = Comprehensive Environmental Response, Compensation, and Liability Information System.
RTN = Release Tracking Number.
EPA = Environmental Protection Agency.
RCRA = Resource Conservation and Recovery Act.
MA DEP = Massachusetts Department of Environmental Protection.
START = Superfund Technical Assessment and Response Team.
No. = Number.
Nos. = Numbers.

[19; 27; 33; 34; 38; 42; 48; 56; 60-72; 84; 86; 87]

PERCHLORATE DESCRIPTION

Perchlorate is released to the environment as a water-soluble anion (ClO_4^-) associated with the solid salts of ammonium, potassium, magnesium, or sodium. Once perchlorate is released to the environment, it can persist for many years under typical groundwater and surface water conditions due to its low reactivity potential. Perchlorate salts produced in the United States have been mainly used as oxidizers in solid propellant for rockets and missiles. Other uses for perchlorate salts include their use in explosives, munitions, matches, fireworks, air bag inflators, and additives in lubricating oils. Perchlorate salts have a limited shelf life and must be replaced in munitions and rockets periodically. This has led to the disposal of large volumes of the compound [41; 43; 45-46].

The effects of perchlorate exposure on human health are currently undergoing scientific review by EPA. However, EPA and external scientific health assessments have shown that perchlorate disrupts iodide uptake into the thyroid gland. Iodide is a key component of proper thyroid function, which in adults helps to regulate metabolism. In children, the thyroid plays a key role in proper development and metabolism. Impairment of thyroid function in expectant mothers may impact the fetus and newborn. The effects on the fetus and newborn may be delayed development, and decreased learning capability. Chronic or long-term lowering of thyroid hormones due to perchlorate exposure may also result in thyroid gland tumors [43; 45].

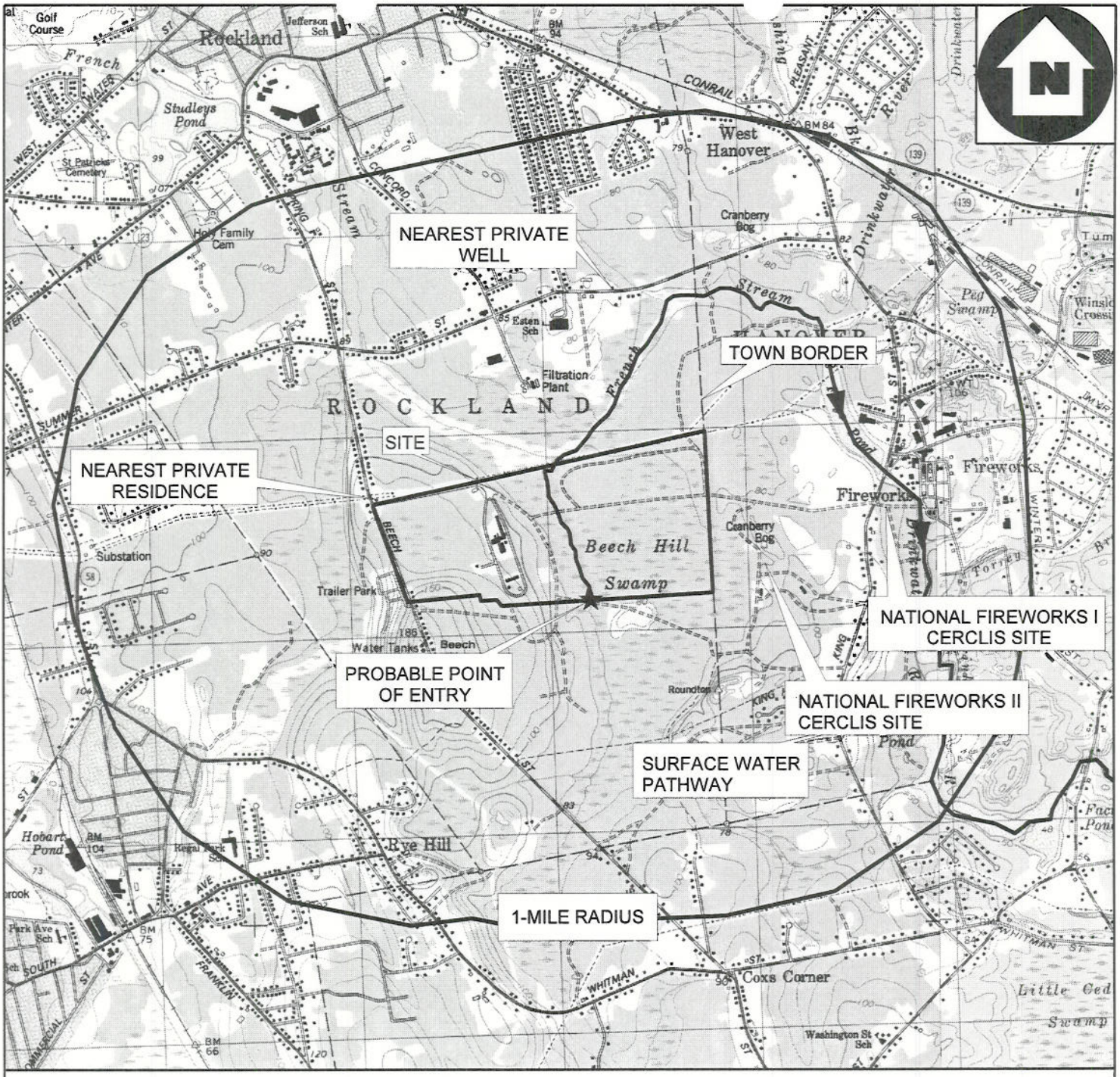
Prior to 1997, perchlorate could not be detected in environmental samples at a concentration below 100 parts per billion (ppb) due to analytical limitations. In April 1997, an analytical method was developed which could detect low concentrations (4 ppb) of perchlorate in water. Laboratory analysis for perchlorate in both soil and groundwater is presently performed by ion chromatography (IC) utilizing EPA Method 314. The published EPA Method 314 has a detection limit of 0.53 ppb and a minimum reporting limit of 4 ppb. Improved low-level reporting limits (1.0 ppb) are achievable utilizing additional Quality Assurance/Quality Control (QA/QC) procedures developed by EPA Region I [41; 44-45; 79].

Currently, no EPA national primary Drinking Water Regulation exists for perchlorate; however, the compound is on EPA's Safe Drinking Water Act (SDWA) Contaminant Candidate List (CCL). The CCL is a list of contaminants which EPA considers priorities for additional research and for regulations under SDWA. The 1999 EPA *Interim Assessment Guidance for Perchlorate* recommended that EPA continue to use a reference dose (RfD) range of 1E-07 to 6E-07 ppb per day for perchlorate-related assessment activities. An RfD represents a scientific estimate of daily exposure to a human population which provides a starting point for risk management decisions. The estimated EPA national drinking water action level for perchlorate, based on the provisional RfD, would range from 4 to 18 ppb [41-45; 52].

STUDY AREA DESCRIPTION

Study Area Location

During the SD for the "Rockland Suspect Site", START discovered that a former fireworks facility operated along the east side of Beech Street in the Town of Rockland, Plymouth County, Massachusetts [62; 63]. The site, now referred to as the Beech Street Fireworks site, is located at 254 Beech Street. The geographic coordinates for the site, as measured from the property entrance along Beech Street, are 42° 06' 07.71" north latitude and 70° 54' 31.10" west longitude (Figures 1 and 2) [9].



BASE MAP IS A PORTION OF THE FOLLOWING DIGITAL TOPOGRAPHIC QUADRANGLE(S):
Q249866; Q249870; Q249874; Q253866; Q253870; Q253874; Q257866; Q257870; Q257874. 1977-1979.

0.5 0 0.5 1 1.5 Miles

2000 0 2000 4000 6000 8000 Feet

0.5 0 0.5 1 1.5 2 2.5 Kilometers

QUADRANGLE LOCATION

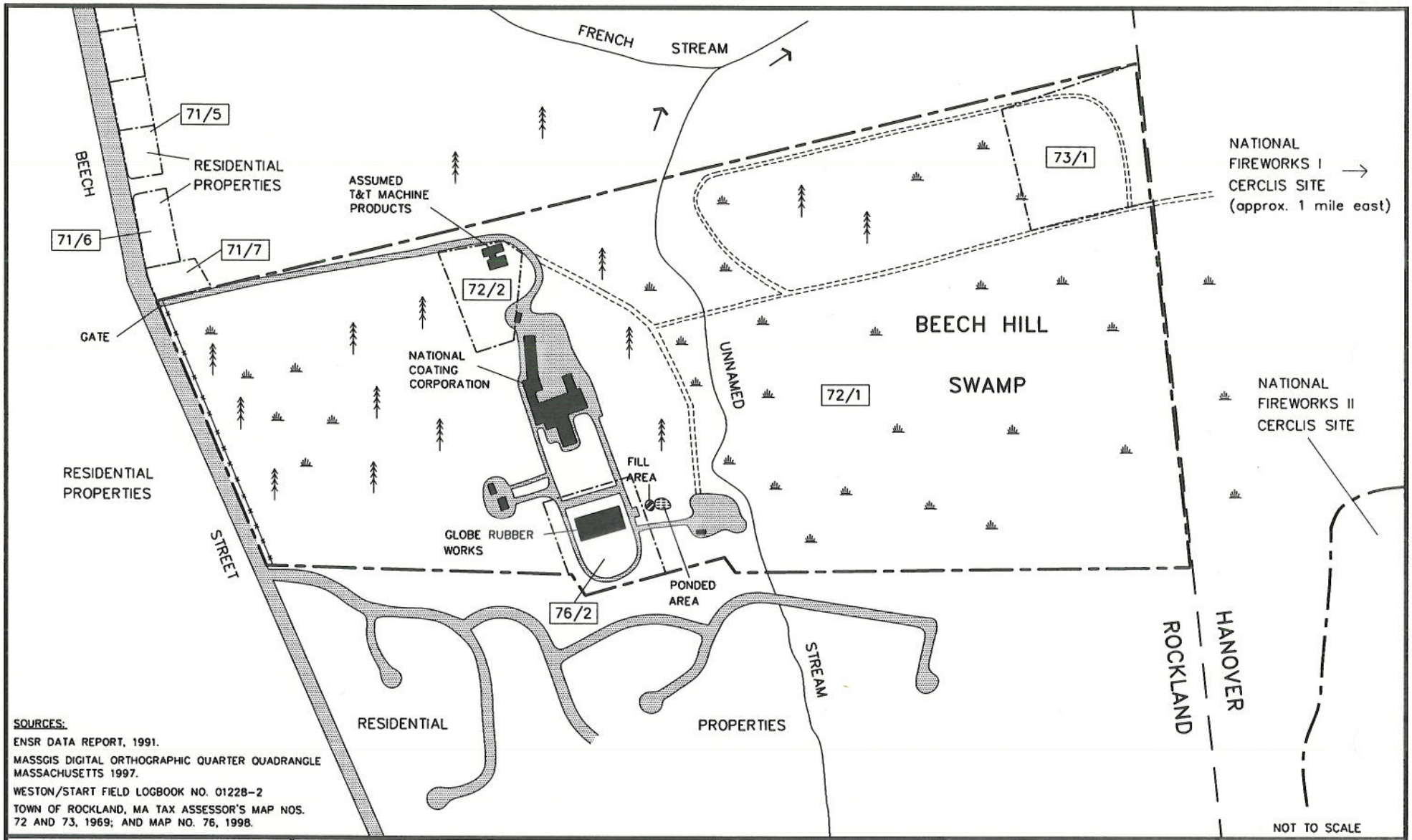
STUDY AREA LOCATION MAP

BEECH STREET FIREWORKS AREA (FORMER)
254 BEECH STREET
ROCKLAND, MASSACHUSETTS

WESTON SOLUTIONS
Restoring Resource Efficiency

REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD #	DRAWN BY:	DATE:
03-09-0004	A. MISKIMAN	12/12/03
FILE NAME: E:\ARC_APRS\START2\Rockland_Supsect.APR		FIGURE 1


FRENCH STREAM
71/5
RESIDENTIAL PROPERTIES
BEECH STREET
71/6
71/7
ASSUMED T&T MACHINE PRODUCTS
72/2
GATE
NATIONAL COATING CORPORATION
73/1
NATIONAL FIREWORKS I CERCLIS SITE (approx. 1 mile east)
BEECH HILL SWAMP
72/1
UNNAMED
NATIONAL FIREWORKS II CERCLIS SITE
RESIDENTIAL PROPERTIES
FILL AREA
GLOBE RUBBER WORKS
PONDED AREA
76/2
HANOVER
ROCKLAND
STREAM
RESIDENTIAL PROPERTIES
NOT TO SCALE
SOURCES:
ENSR DATA REPORT, 1991.
MASSGIS DIGITAL ORTHOGRAPHIC QUARTER QUADRANGLE MASSACHUSETTS 1997.
WESTON/START FIELD LOGBOOK NO. 01228-2
TOWN OF ROCKLAND, MA TAX ASSESSOR'S MAP NOS. 72 AND 73, 1969; AND MAP NO. 76, 1998.
LEGEND
PAVED AREA
WOODED AREA
WETLANDS
72/1 MAP/LOT NUMBER
BUILDINGS
SITE BOUNDARY
SUSPECTED DIRT ROAD
LOT BOUNDARY
FENCE LINE
FLOW DIRECTION
STUDY AREA SKETCH
BEECH STREET FIREWORKS AREA (FORMER)
254 BEECH STREET
ROCKLAND, MASSACHUSETTS
WESTON SOLUTIONS
REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
TDD # 03-09-0004
DRAWN BY: R. MANDERBACH
DATE 11/13/2003
FILE NAME: S:\03090004\FIG2.dwg
FIGURE 2
N

The approximate 213-acre property is identified on the Town of Rockland Tax Assessor Map No. 72 as Lot Nos. 1 and 2, Map No. 73 as Lot No. 1, and Map No. 76 as Lot No. 2 [35; 37; 84]. The site is bordered to the north and south by private residences; to the west by Beech Street; and to the east by the Hanover and Rockland town border, wetlands, and the National Fireworks II/Sevigny Candy (National Fireworks II) site (CERCLIS No. MAD980909675) (Figure 2). The National Fireworks II site currently consists of Buckley Associates, Inc., Town of Hanover Conservation Land, and numerous residential properties, located within the Town of Hanover [9; 36; 37; 83].

The Beech Street Fireworks site is currently divided into four lots. The National Coating Corporation (National Coating) is identified on the Town of Rockland Tax Assessor Map No. 72 as Lot No. 1 (approximately 198 acres) and Map No. 73 as Lot No. 1 (approximately 5 acres); Emil and Joseph Nigo (Trustees of Beech Hill Realty Trust) own Map No. 72, Lot No. 2 (approximately 5 acres); and Globe Rubber Works, Inc. (Globe Rubber) owns Map No. 76, Lot No. 2 (approximately 5 acres) [35-38; 84]. Table 2 summarizes the current property owners of the Beech Street Fireworks site.

Table 2

Current Property Owners of the Beech Street Fireworks Area (Former)

Location	Property Owner
Map No. 72, Lot No. 1	National Coating Corporation
Map No. 72, Lot No. 2	Trustees of Beech Hill Realty Trust
Map No. 73, Lot No. 1	National Coating Corporation
Map No. 76, Lot No. 2	Globe Rubber Works, Inc.

[35-38; 84]

Study Area Operational History and Waste Characteristics

Information on property ownership and land use prior to 1907 was not available in the records obtained by START. The Beech Street Fireworks site changed ownership and was bought in various-sized parcels through numerous transactions between 1907 and the present [1-8; 80].

On 19 November 1907, Mr. James S. Abbot purchased 20 acres of land, a portion of the Beech Street Fireworks site, from Mr. Charles F. Russell. On 11 December 1914, Mr. George J. J. Clark purchased these 20 acres from Mr. Abbot. This land was described as located within the Town of Rockland, with the eastern property boundary located along the Rockland/Hanover town line [1].

Mr. Clark continued to purchase small parcels of land east of Beech Street in Rockland through numerous transactions between 1910 and 1935 [6; 8]. The amount of land owned by Mr. Clark by 1935 is unknown to START.

On 21 October 1940, Mr. Clark sold two parcels of the site, totaling 69 acres, to National Explosives, Inc. [1; 4]. Operations conducted by National Explosives, Inc. were not documented in the available file information obtained by START.

On 3 April 1941, Mr. Clark sold the remainder of his property to National Fireworks, Inc. of West Hanover. The property included 68.5 acres of land east of Beech Street, Rockland; 158.4 acres of "wood and swamp land" located in both Rockland and Hanover; 21.5 acres of woodland and pasture in Rockland; and 11.7 acres of woodland swamp in Rockland. The same deed also documents that National Fireworks, Inc. purchased an additional 19.5 acres of land in Hanover [6]. Operations conducted on the Beech Street Fireworks site by National Fireworks, Inc. were not documented in the available file information obtained by START.

The 1941 Whitman, Massachusetts U. S. Geological Survey (USGS) Quadrangle topographic map illustrates roads connecting the Beech Street Fireworks site, crossing over the Rockland/Hanover town line, to the National Fireworks I (CERCLIS No. MAD980908842) site located in Hanover [92]. In addition, the 1977 Whitman, Massachusetts USGS Quadrangle topographic map illustrates roads connecting the Beech Street Fireworks site to the National Fireworks II Site located in Hanover [15]. During World War II (1941) and continuing through the Korean War (1953), the National Fireworks I site was manufacturing military munitions, including tracers, fuses, ammunition [primarily 20-millimeter (mm) antiaircraft shells], flares, and signals. Materials used in the manufacturing of munitions during World War II included amatol, trinitrotoluene (TNT), and cordite. Reportedly, black powder and magnesium were disposed of on the National Fireworks I site. In addition, information indicates that testing of magnesium flares and 20-mm antiaircraft shells during World War II (1941-1945) was conducted on the National Fireworks I site [40, p. 2-3; 95; 96, p. 2; 97]. From 1940 to 1945, National Fireworks, Inc. operated a shell loading plant on the National Fireworks II site and stored the finished steel shell casings in warehouses located throughout Beech Hill Swamp, north and west of the National Fireworks II site [93, p. 4; 94, p. 7]. START suspects National Fireworks, Inc. utilized the dirt roads that connected the Beech Street Fireworks site to the National Fireworks I and II sites (Figures 1 and 2). However, the purpose of these roads and their utilization could not be determined in available file information obtained by START.

On 15 June 1942, National Fireworks, Inc. purchased the 69 acres of the Beech Street Fireworks site from National Explosives, Inc. [3].

On 30 December 1946, The Bay State Co. purchased a parcel of land in Rockland, assumed to be part of the Beech Street Fireworks site, and the size of which is unknown, from National Fireworks, Inc. This land also included a "right of way" to and from King Street in the Town of Hanover [80].

On 26 September 1957, The Bay State Co. purchased approximately 3 acres of the Beech Street Fireworks site in Rockland from National Fireworks, Inc. The deed also included a "right of way" to and from the National Fireworks, Inc. land located along King Street in Hanover [5]. Operations conducted by The Bay State Co. are unknown to START.

On unknown dates between 1957 and 1959, National Associates purchased the portions of the Beech Street Fireworks site owned by National Fireworks, Inc. and The Bay State Co. [2].

On 10 November 1959, Clark-Babbitt Foods, Inc. purchased the land located between Beech Street and the town lines of Hanover and Rockland, from the Trustees of National Associates. The deed also mentions that Mr. Clark, former property owner of the Beech Street Fireworks site, was a member of this board of trustees [2]. The type of operations conducted by Clark-Babbit Foods, Inc. is unknown to START.

On 16 September 1974, Clark-Babbitt Foods, Inc; National Coating, Inc.; and National Fireworks Ordnance Corporation merged into the parent company, National Coating [7].

START suspects that National Coating subdivided the property after 1974 into the four lots that currently comprise the approximately 213-acre site.

On 7 December 1976, Globe Rubber purchased a 5-acre parcel of land from National Coating located at 254 Beech Street in Rockland (Map No. 76, Lot No. 2) [8].

In May 1985, National Coating experienced a fire destroying "a large part of the facility" [58]. Further details regarding this fire were not available in file information obtained by START.

Reportedly in 1991, Presidential Sheet Metal Company was located in the northern portion of the property, National Pallet Company was located southwest of Globe Rubber, and a contractor for equipment storage (assumed to be the landscaping property referred to in a 1991 MA DEP Memorandum) leased the area southeast of National Coating. In addition, a former mink farm was reportedly located in the southeastern portion of the property [51; 58]. No further information regarding these companies could be obtained by START during the Plymouth County Registry of Deeds file review.

Commercial businesses currently operating on the property include National Coating; Globe Rubber; and T & T Machine Products, as indicated on the commercial sign posted at the entrance to 254 Beech Street [9].

START was unable to locate any documentation describing the specific fireworks operations conducted on the Beech Street Fireworks site. In addition, START was unable to document the use and/or disposal of perchlorate on the property. However, the Beech Street Fireworks site deed history indicates the presence and transfer of ownership of "right of ways" connecting the Beech Street Fireworks site to the National Fireworks Inc. property (National Fireworks I and II) located in Hanover [5; 80]. It is unknown to START what these roads were utilized for. However, reportedly, the finished steel shell casings from the National Fireworks II shell loading plant were stored in warehouses located throughout Beech Hill Swamp, north and west of the National Fireworks II site. It is unclear to START if the finished steel shell casings were stored on the Beech Street Fireworks site, located west of National Fireworks II. In addition, the National Fireworks II site was associated with the National Fireworks I site, located approximately 0.5 miles east of the National Fireworks II site in Hanover. Perchlorate was used during the production of ordnance and was disposed of on the National Fireworks I site [73; 88; 89; 93; 94]. Therefore, based on the limited information obtained, perchlorate may have been used/disposed of on the Beech Street Fireworks site.

Study Area Regulatory History

START requested file reviews of Federal and State regulatory agencies. START was unable to locate any Federal regulatory history file information for the property. According to the MA DEP Site/Reportable Release Database, National Coating has been assigned two Release Tracking Numbers (RTNs) (4-0000354 and 4-0010026) [90].

On 8 September 1980, Massachusetts Department of Environmental Quality Engineering (MA DEQE), now known as MA DEP, observed the removal of 28 drums from "the bottom of the fill material east of Globe Rubber". One of the drums contained a purple substance and was noted to have a methyl ethyl ketone odor. In addition, a 400 square-foot area of stained soil was excavated. On 16 September 1980, MA DEQE noted that the excavation had formed into a "small pond" and the water within the pond had a "slight purple tint" [58]. According to a ENSR Consulting and Engineering (ENSR) Phase I Site Assessment report, volatile organic compounds (VOCs) were detected in the surface water collected from the pond by an unknown party; however, VOCs were not detected in the soil [50]. START suspects this ponded area was located east of the current Globe Rubber building (Figure 2) [51, Figure 1]. Further information on the soil excavation was not available in file information obtained by START.

In 1985, five steel underground storage tanks (USTs) (size and containment are unknown) were removed from the National Coating property and replaced with 5,000-gallon doubled-walled USTs. In 1986, a 5,000-gallon No. 6 oil tank was pumped, cleaned, and removed from the National Pallet Company property [58]. Based on the limited information available, it is unclear to START if this tank was one of the 5,000-gallon double-walled USTs installed in 1985.

In 1986, MA DEQE issued a Consent Order and a Notice of Non-Compliance to National Coating for the unauthorized and improper storage of hazardous waste, the improper management of hazardous waste, and operating record violations [49].

In August 1986, a surface water sample was collected from the "western and upgradient" portion of the Globe Rubber property by an undisclosed party. The surface water sample was analyzed for VOCs only. Analytical results indicated the presence of chlorinated solvents ranging from 14 ppb of 1,1-dichloroethane (1,1-DCA), to 680 ppb of 1,1,1-trichloroethane (1,1,1-TCA) [58]. There was no further information provided regarding the 1986 surface water sampling.

On 3 September 1986, National Coating submitted a contingency plan to MA DEQE. A list of chemicals used during on-site processes and stored on the property was included within the plan. These chemicals included "AD-1 (floun), A1536 B, A1347, ASE-60, ammonia, black dye, brown dye, buna, carbitol, denatured alcohol, E835 (bondmaster), ICI-829, isopropanol, methanol, methyl ethyl keyton, ply peg E400, red dye, 23063 resin, 295 resin, GP 5168 resin, SW 2071 resin, GP5137 resin, 94-408 resin, 99-999 resin, silicone 468, and Triton X100" [78].

In 1986, six 2-inch (assumed) diameter polyvinyl chloride (PVC) monitoring wells were installed on the National Coating property. In October 1986, six groundwater samples were collected by an undisclosed party. Analytical results indicated the presence of the following eight VOCs: acetone; carbon tetrachloride; 1,1-DCA; 1,1-dichloroethene (1,1-DCE); methylene chloride; tetrachloroethene (PCE); 1,1,1-TCA; and trichloroethene (TCE) [58]. It is assumed by START that groundwater

samples were only analyzed for VOCs. Refer to the Groundwater Pathway section of this report for further details on the analytical results.

On 7 January 1987, 10 test pits were excavated east of the Globe Rubber parcel by an unknown party. During test pit excavation, approximately 10 drums were unearthed. A soil sample was collected from each test pit. Analytical results of the soil samples indicated the presence of methylene chloride and 2-butanone [58]. No further information regarding the test pitting and soil sampling was available in file information obtained by START.

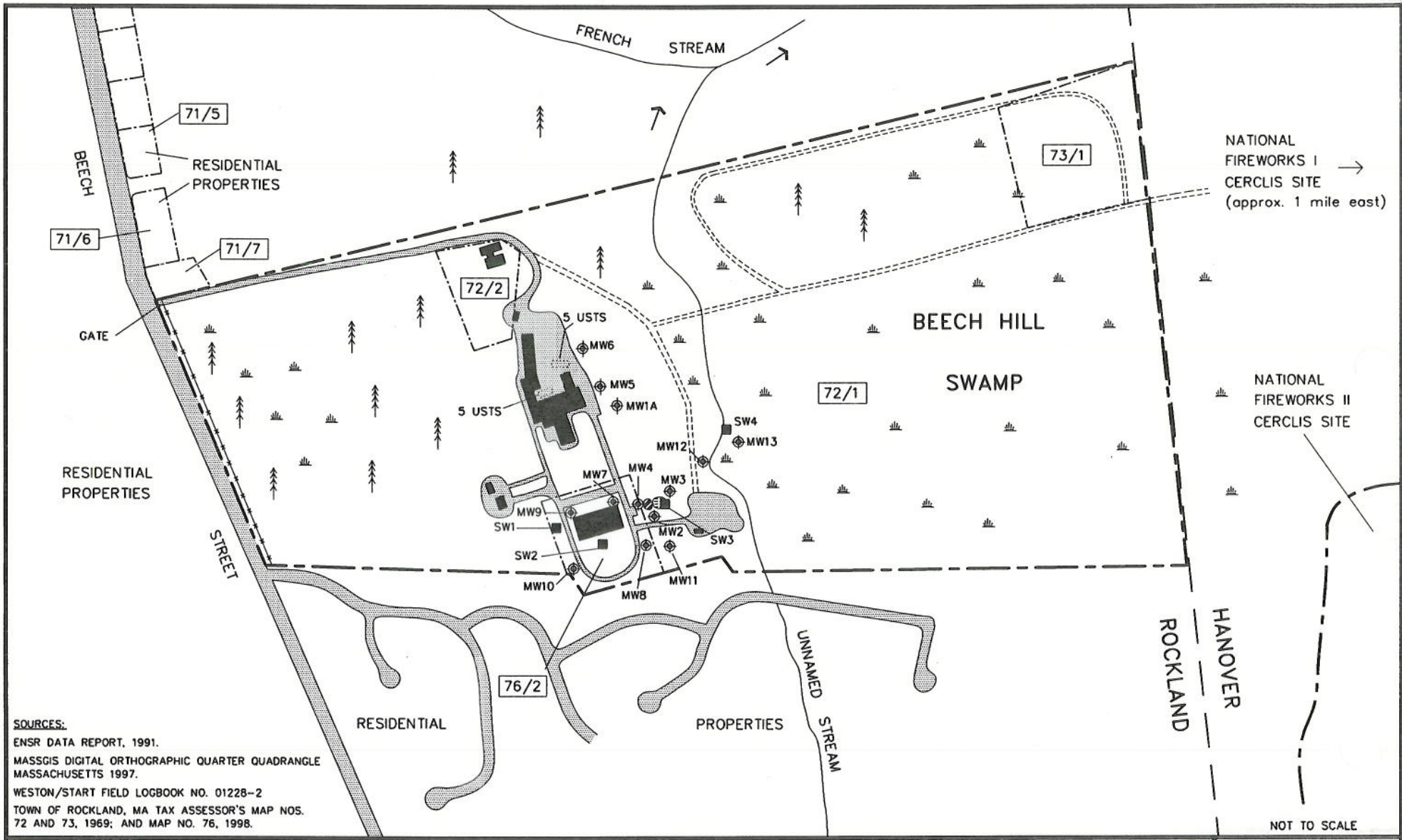
In May 1987, four surface water samples were collected from an unknown area on the Beech Street Fireworks site by an undisclosed party. Analytical results indicated the presence of four VOCs, including 1,1-DCA; PCE; 1,1,1-TCA; and TCE [58]. Refer to the Surface Water Pathway section of this report for further details on the analytical results.

In 1989, ENSR reported that 12 groundwater samples were collected from monitoring wells (MW2, MW3, MW3A, and MW5 through MW13) on the Beech Street Fireworks site. START assumes these samples were collected by ENSR. Analytical results of the groundwater samples indicated the presence of the following eight VOCs: acetone; benzene; chloroform; 1,1-DCA; trans-1,2-dichloroethene; 1,1,1-TCA; PCE; and TCE [51]. The approximate locations of on-site monitoring wells, as reported in the 1991 ENSR report, are illustrated on Figure 3. Refer to the Groundwater Pathway section of this report for further details on the analytical results.

In April 1990, ENSR conducted a Phase I Site Assessment of the National Coating property. ENSR determined that a release of "oil or hazardous materials" had occurred on site. In addition, the Phase I report indicated annual groundwater sampling had been conducted on the property since 1987 and a decrease in VOC concentrations was reported each year [50]. No further information regarding the annual groundwater testing was available in file information obtained by START.

According to a 21 May 1991 MA DEQE memorandum, National Coating submitted a Waiver Application for classification of National Coating as a "non-priority disposal site". The memorandum also documented the presence of nine 5,000-gallon USTs and one 2,000-gallon UST present on the National Coating property. Five of the 10 USTs were the double-walled tanks replaced in 1985 and contained isopropyl alcohol, phenolic resin, and methanol. Reportedly, the remaining five tanks were scheduled for removal when funding became available. Two of the remaining five tanks contained "asphaltic emulsion", one tank contained isopropyl alcohol, and two tanks were empty [58]. No further information on the removal of the USTs was available in the memorandum.

On 6 June 1991, MA DEQE approved the National Coating Waiver Application with specific conditions. These specific conditions included the following: the completion of another round of groundwater sampling; the removal and proper disposal of drums located in the fill area; the removal of the (assumed) remaining five USTs; the completion of a Phase II investigation; and the MA DEQE-approved transport of contaminated soils from the site. In addition, MA DEQE would possibly conduct "audits" of the site [59].



HISTORIC SAMPLE LOCATION MAP

BEECH STREET FIREWORKS AREA (FORMER)
254 BEECH STREET
ROCKLAND, MASSACHUSETTS

WESTON SOLUTIONS
REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD #	DRAWN BY:	DATE
03-09-0004	R. MANDERBACH	11/13/2003

FILE NAME: S:\03090004\FIG2.dwg

FIGURE 3

On 28 August 1991, ENSR collected 13 groundwater samples from 13 on-site monitoring wells (MW1A, MW2 through MW13) located on the National Coating and Globe Rubber properties; and two surface water samples from the ponded area (SW3) on the National Coating property. ENSR attempted to collect additional surface water samples from the site; however, these sampling locations (assumed by START to be SW1, SW2, and SW4) were dry (Figure 3). No VOCs were detected in the surface water samples. Five VOCs were detected in groundwater samples, including 1,1-DCA; total 1,2-dichloroethene; 1,1,1-TCA; TCE; and PCE. ENSR noted that VOC levels in groundwater were declining over time compared to historical sampling results [51]. However, based on the limited data START obtained for this report, START could not confirm this conclusion. Refer to the Groundwater and Surface Water Pathway sections of this report for further details on the analytical results.

On 28 August 1991, ENSR also completed a drum reconnaissance of the National Coating property. ENSR observed eight exposed or partially buried drums on the property. The drums were either empty or contained "minor amounts of soil" or "residues of liquid." In addition, one drum reportedly contained a rubber-like material [53].

On 16 December 1991, MA DEQE classified the National Coating property as a "non-priority disposal site" [76].

In November 1993, a release of less than 15 gallons of a "viscous phenol/formaldehyde resin" occurred at the National Coating property during the delivery of materials to the USTs located north of the on-site building. Red-stained soil was excavated and removed, and confirmatory soil samples were collected from the limits of the excavation. The soil samples were field screened for VOCs using a photoionization detector (PID); and samples were composited and analyzed by American Environmental Labs, of Leominster, Massachusetts, for formaldehyde, methanol, and phenol. No VOCs were detected during field screening. Analytical laboratory results of the soil samples indicated the presence of phenol at 625 parts per million (ppm). Additional soil samples were collected from the spill area during April 1994 and analyzed for phenols utilizing EPA Method 420.1. Analytical results of the 1994 samples indicated "none detected" levels. According to the Response Action Outcome Statement, groundwater was not encountered during excavation activities [77].

In October 1995, MA DEP issued a Notice of Responsibility (NOR) (RTN 4-0000090) to several parties in response to lead and mercury detected in sediment samples collected by MA DEP from Forge Pond, Factory Pond, and streams located on the National Fireworks I site, located approximately 1 mile east of the Beech Street Fireworks site. In response to the NOR, three of the parties, one being National Coating, formed the Fireworks Site Joint Defense Group [40, p. 2-11; 54].

On 18 February 1997, ENSR resubmitted a Tier II Extension for National Coating to MA DEP. National Coating was requesting a Notification of Tier II Classification Extension upon the expiration of the Waiver of Approvals issued on 20 June 1991 [81].

In 2002, a Phase IIC Site Investigation was completed for the National Fireworks I site located in Hanover, MA. The environmental evaluation of the approximately 240-acre property was conducted on behalf of the Fireworks Site Joint Defense Group, of which National Coating is a member [82].

Perchlorate was documented to have been used during the production of ordnance and was disposed of on the National Fireworks I site [73; 88]. Investigations for the National Fireworks I site are ongoing [82].

START OFF-SITE RECONNAISSANCE SUMMARY

On 6 November 2003, START personnel conducted an off-site reconnaissance of the Beech Street Fireworks site. The property was observed from Beech Street, which borders the western property boundary. The western portion of the property was thickly vegetated and enclosed by a chain-link fence. START was unable to observe any on-site buildings from the available public access vantage points. START observed a gated, paved road leading into the site at the northwestern corner of the property. During the off-site reconnaissance, the gate was observed to be open, with signs posted stating "No Trespassing." A sign was posted at the property entrance listing the commercial businesses currently located on the property. These businesses consist of National Coating, Globe Rubber, and T & T Machine Products [9]. According to the Town of Rockland Tax Assessor's maps, the nearest occupied buildings are located on site [35-37]. No immediate areas of concern, staining, leachate outbreak, or stressed vegetation were observed from the available public vantage points during the off-site reconnaissance. The site is accessible via the private paved road leading into the property [9]. Figure 2 provides a general overview of the on-site buildings and other fixed objects either observed during the off-site reconnaissance or interpreted from the Town of Rockland's Tax Assessor's Maps and a 1997 aerial photograph [85]. START personnel recorded the geographic coordinates for the entrance to the site along Beech Street using a global positioning system (GPS) unit (Figure 4) [9]. Table 3 summarizes the geographical coordinates for the Beech Street Fireworks site.

Table 3

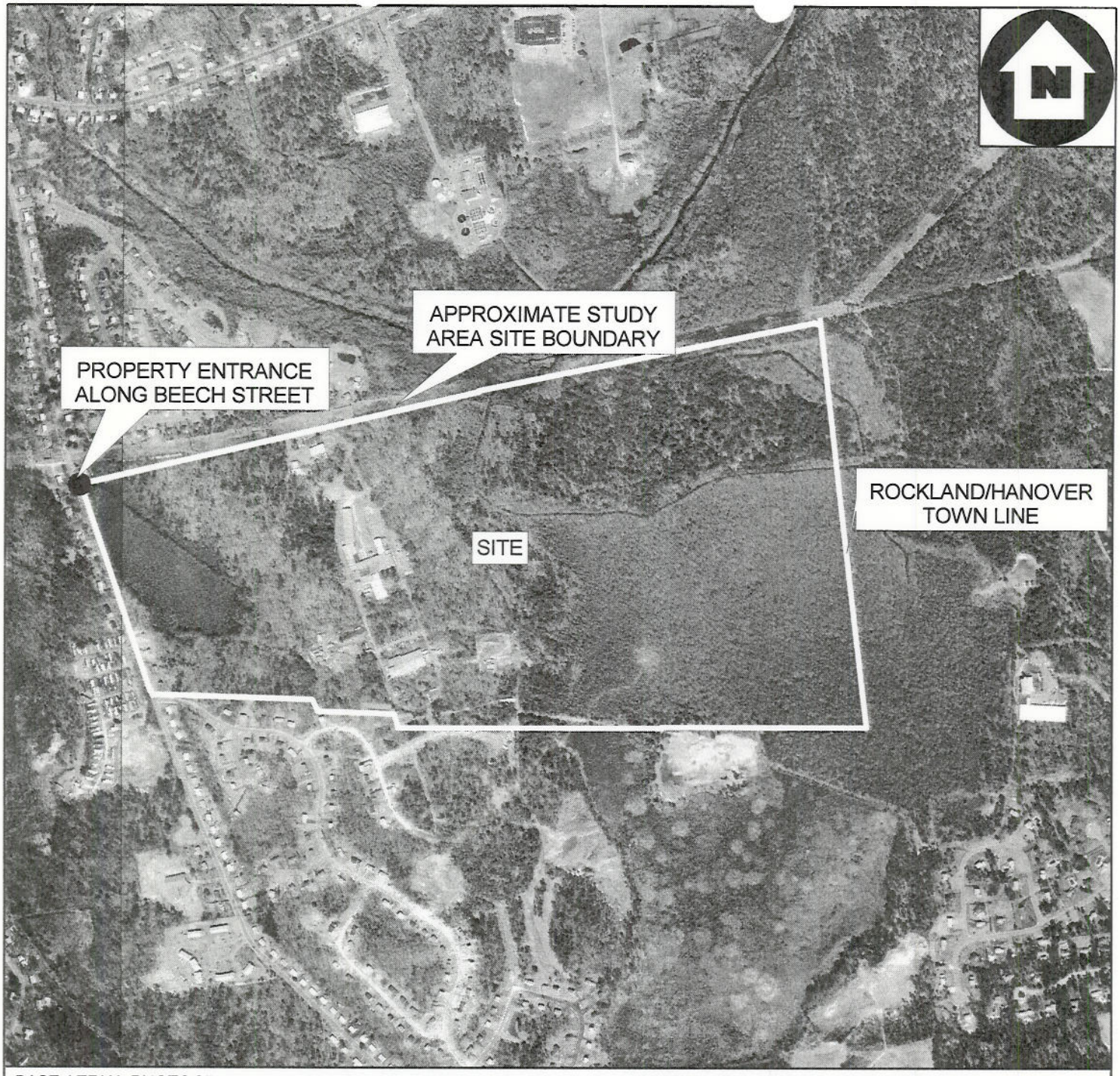
Geographical Coordinates of Beech Street Fireworks Area (Former)
Recorded by START on 6 November 2003

Site Feature	Geographical Coordinates
Property entrance along Beech Street	42° 06' 07.71" North latitude 70° 54' 31.10" West longitude

[9]

Potential Immediate Threat to Natural Resources

START did not observe any immediate potential threats to natural resources during the 6 November 2003 off-site reconnaissance [9].



BASE AERIAL PHOTOGRAPH IS A PORTION OF THE FOLLOWING 0.5-METER RESOLUTION DIGITAL ORTHOGRAPHIC QUARTER QUADRANGLE(S): MASSACHUSETTS 249870 AND 253870, 1997.

0.1 0 0.1 0.2 0.3 0.4 0.5 0.6 Miles

500 0 500 1000 1500 2000 2500 3000 Feet

0.5 0 0.5 Kilometers

STUDY AREA AERIAL PHOTOGRAPH

BEECH STREET FIREWORKS AREA (FORMER)
254 BEECH STREET
ROCKLAND, MASSACHUSETTS

WESTON SOLUTIONS
Restoring Resource Efficiency
REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD #	DRAWN BY:	DATE:
03-09-0004	A. MISKIMAN	11/23/03
FILE NAME: E:\ARC_APRS\START2\Rockland_Suspect.APR		FIGURE 4

ENVIRONMENTAL TARGET FACTORS/CONSIDERATIONS

Sources of Contamination

Potential sources of contamination associated with the Beech Street Fireworks site include, but may not be limited to, the following:

- Suspected historical handling, storage, manufacturing, and testing of fireworks on the property.
- Suspected connection to the National Fireworks I site in Hanover, MA where the disposal of perchlorate was documented on the property.
- USTs on the National Coating property that contained isopropyl alcohol, phenolic resin, methanol, and "asphaltic emulsion".
- A 1993 release of less than 15 gallons of a "viscous phenol/formaldehyde resin" on the National Coating property.
- A fill area located east of the Globe Rubber property where additional potential drums may be buried.

Groundwater Pathway

Overburden geology in the Rockland area consists primarily of deep, nearly level to moderately steep, well drained and moderately well drained soils formed in glacial till; and nearly level, somewhat excessively drained soils formed in sand and gravel [13]. According to the bedrock geologic map for Massachusetts, the general bedrock geology beneath the site is mapped as the Rhode Island Formation, sandstone, graywacke, shale, and conglomerate and minor beds of meta-anthracite [12]. Depth to bedrock beneath the Beech Street Fireworks site is unknown. According to an MA DEQE memorandum, groundwater beneath the site ranges from approximately 4.7 to 11.6 feet below ground surface [58]. Groundwater flow direction is unknown.

All or portions of the following Massachusetts towns and cities are located within 4 radial miles of the Beech Street Fireworks site (approximate population in parentheses): Abington (14,605), East Bridgewater (11,104), Hanson (9,495), Hanover (13,164), Pembroke (16,927), Rockland (17,670), and Whitman (13,882) [15-18; 21-24; 31; 32; 55].

Residents in the Towns of Abington and Rockland are supplied with public drinking water from the Abington/Rockland Joint Water Works. The Abington/Rockland Joint Water Works supplies drinking water from four groundwater wells located along Myers Avenue in Abington; and from two surface water sources, Great Sandy Bottom Pond in Pembroke, and Hingham Street Reservoir in Rockland. The Myers Avenue wells are located approximately 1.75 miles west of the Beech Street entrance to the Beech Street Fireworks site, and supply approximately 20 percent of the total system [15; 25]. Great Sandy Bottom Pond and Hingham Street Reservoir are located greater than 4 radial miles from the site and not along the 15-mile downstream surface water pathway [16; 18]. The Abington/Rockland Joint Water Works supplies approximately 32,360 residents [25; 26]. According

to the Rockland Department of Health, only one private drinking water well is located within the Town of Rockland. This well is used for both commercial and residential use [15; 19].

The Town of East Bridgewater is supplied with drinking water from five gravel-packed groundwater supply wells located within East Bridgewater. These sources include the following: Pond Street Well, Crescent Street Well, Washington Street Well, Hudson Street Well, and East Street Well [34]. All five wells are located greater than 4 radial miles from the Beech Street Fireworks site [15].

Residents in the Town of Hanson are supplied with potable water from two gravel-packed drinking water groundwater supply wells located approximately 3.9 miles south of the site, along Main Street in Hanson. These two wells will be referred to as Hanson Well Nos. 1 and 2 for the purposes of this report. Occasionally, water supplied from the two groundwater supply wells is blended with drinking water purchased from the City of Brockton. The total system supplies approximately 2,800 households, approximately 90 percent of the Town's total population [15; 16; 56; 57]. The remaining 10 percent of the population of Hanson is assumed to be supplied with drinking water from private water supplies.

Residents in the Town of Hanover are supplied with public drinking water from nine groundwater drinking water sources at four locations within the Town of Hanover. These sources include the following: seven overburden gravel-packed wells, Broadway Well Nos. 1 and 2, Hanover Street Well Nos. 1 and 2, and Pond Street Well Nos. 1, 2, and 3; and two bedrock wells, Beal Well Nos. 1 and 2 [30; 72; 73]. The Broadway Wells are located approximately 3.4 miles east of the site. The Hanover Street Wells are located approximately 3.6 miles northeast of the site. The Beal Wells are located approximately 4 miles east of the site. The Pond Street Wells are located greater than 4 miles from the site [16; 72]. The entire system is blended after treatment and then distributed. The Hanover public water system serves a total of approximately 14,200 residents [73].

Residents in the Town of Pembroke are supplied with public drinking water from five gravel-packed groundwater wells within the Town of Pembroke. These wells serve approximately 18,000 people [60; 61]. These supply sources include the following: Hobomock Well, Center Street Well, School Street Well, Sandy Lane Well, and G.P.W. #5. All five wells are located greater than 4 radial miles from the site [91].

Residents in the Town of Whitman are supplied with public drinking water purchased from the Town of Brockton. The Town of Brockton obtains its drinking water from two surface water bodies, Silver Lake and Brockton Reservoir. Silver Lake and Brockton Reservoir are located greater than 4 radial miles from the site and are not located along the downstream surface water pathway [15; 20; 27-29]. Table 4 summarizes the public groundwater supply sources within 4 radial miles of the Beech Street Fireworks site.

Table 4

Public Groundwater Supply Sources Within 4 Radial Miles of Beech Street Fireworks Area (Former)

Distance/ Direction from Site	Source Name[a]	Location of Source[b]	Estimated Population Served	Source Type[c]
1.75 miles west	Myers Avenue Wells (4 wells)	Abington	6,472 [1]	Unknown
3.4 miles east	Broadway Well No. 1	Hanover	1,578 [2]	Overburden
3.4 miles east	Broadway Well No. 2	Hanover	1,578 [2]	Overburden
3.6 miles northeast	Hanover Street Well No. 1	Hanover	1,578 [2]	Overburden
3.6 miles northeast	Hanover Street Well No. 2	Hanover	1,578 [2]	Overburden
3.9 miles south	Hanson Well No. 1	Hanson	4,273 [3]	Unknown
3.9 miles south	Hanson Well No. 2	Hanson	4,273 [3]	Unknown
4.0 miles east	Beal Well No. 1	Hanover	1,578 [2]	Bedrock
4.0 miles east	Beal Well No. 2	Hanover	1,578 [2]	Bedrock

[a] Table contains only active wells.
[b] Indicates Town in which well is located.
[c] Overburden, Bedrock, or Unknown.

[1] The four Myers Avenue Wells contribute 20 percent of the total Abington/Rockland public water supply system, which serves approximately 32,360 residents. Therefore, 20% of 32,360 = 6,472 people.
[2] START assumes the nine groundwater wells in Hanover contribute equally to the public water supply system. The wells serve 14,200 people; therefore, 14,200 ÷ 9 =1,578 people per well.
[3] The Hanson Well Nos. 1 and 2 serve a maximum of approximately 90% of the Town's population. Therefore, 90% of 9,495 people = 8,546 people. 8,546 people ÷ 2 wells = 4,273 people per well.

[25; 56; 57; 72; 73]

Private groundwater supply wells located within 4 radial miles of the Beech Street Fireworks site were estimated using equal distribution calculations of U.S. Census CENTRACTS data identifying population, households, and private water wells for "Block Groups" which lie within or partially within individual radial distance rings measured from the Beech Street Fireworks site. Attempts were made to verify the information provided by CENTRACTS data through telephone calls to local health and/or water departments when possible. An estimated 762 people are served by private groundwater supply wells within 4 radial miles of the Beech Street Fireworks site [14]. The location of the nearest private groundwater supply well is 900 Summer Street in the Town of Rockland, MA, approximately 0.85 miles northeast of the approximate center of the Beech Street Fireworks site. According to the Rockland Department of Health, the private well serves one business and one private residence [19]. Table 5 summarizes the estimated drinking water population served by groundwater sources (public and private) within 4 radial miles of the Beech Street Fireworks site.

Table 5

Estimated Drinking Water Population Served by Groundwater Sources Within 4 Radial Miles of the Beech Street Fireworks Area (Former)

Radial Distance from Beech Street Fireworks Area (Former) (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources Within the Ring
≥ 0.00 to 0.25	2	0	2
> 0.25 to 0.50	5	0	5
> 0.50 to 1.00	17	0	17
> 1.00 to 2.00	76	6,472	6,548
> 2.00 to 3.00	175	0	175
> 3.00 to 4.00	487	18,014	18,501
TOTAL	762	24,486	25,248

[14; 25; 56; 57; 72; 73]

In 1986, six 2-inch (assumed) diameter PVC monitoring wells were installed on the National Coating property, and six groundwater samples were collected by an undisclosed party. Analytical results indicated the presence of the following eight VOCs (with maximum concentrations noted in parentheses): acetone (140 ppb); carbon tetrachloride (130 ppb); 1,1-DCA (100 ppb); 1,1-DCE (14 ppb); methylene chloride (10 ppb); PCE (66 ppb); 1,1,1-TCA (470 ppb); and TCE (340 ppb) [58]. It is assumed by START that groundwater samples were only analyzed for VOCs.

In 1989, ENSR reported that 12 groundwater samples were collected from monitoring wells (MW2, MW3, MW3A, and MW5 through MW13) on the Beech Street Fireworks site. The approximate location of these wells is illustrated on Figure 3. START assumes these samples were collected by ENSR. Analytical results indicated the presence of the following eight VOCs, with maximum concentrations in parentheses: acetone (27 ppb); benzene (3.5 ppb); chloroform (2.1 ppb); 1,1-DCA (14 ppb); trans-1,2-dichloroethene (6.6 ppb); 1,1,1-TCA (74 ppb); PCE (6.4 ppb); and TCE (13 ppb). Analytical results also indicated that acetone was detected in the "blank" sample [51]. Further information was not available in the file information obtained by START.

In April 1990, ENSR conducted a Phase I Site Assessment of the National Coating property. The Phase I indicated annual groundwater sampling had been conducted on the property since 1987, and a decrease in VOC concentrations was reported each year [50]. Further information regarding the annual groundwater testing was not available in file information obtained by START.

On 28 August 1991, ENSR collected 13 groundwater samples from the 13 on-site monitoring wells (MW1A, MW2 through MW13) on the Globe Rubber and National Coating properties (Figure 3). Groundwater samples were collected using disposable polyethylene bailers and analyzed by NET Atlantic, Inc. of Bedford, Massachusetts. It is assumed by START that the samples were only analyzed for VOCs. Five VOCs were detected in groundwater, with maximum concentrations noted

in parentheses: 1,1-DCA (28 ppb); total 1,2-dichloroethene (5 ppb); 1,1,1-TCA (21 ppb); TCE (12 ppb); and PCE (14 ppb). The VOCs were detected in groundwater collected from wells located in the vicinity of the 1980 drum and soil excavation, east of the Globe Rubber parcel, on the National Coating property. ENSR noted that VOC levels in groundwater were declining over time [51]. However, based on the limited data START obtained for this report, START could not confirm this conclusion.

Based on the available data, elevated concentrations of VOCs, including chlorinated solvents, have been documented in on-site groundwater samples collected from the Beech Street Fireworks site since 1986. However, to date, no groundwater samples collected from the Beech Street Fireworks site are known to START to have been analyzed for other parameters, including metals or perchlorate. Based on the limited available data, potential impacts to nearby groundwater drinking water supply sources from on-site sources are unknown.

Surface Water Pathway

Based upon review of the topographic maps for the site, the property generally slopes east toward the unnamed stream and Beech Hill Swamp located in the eastern portion of the property. Overland flow for the western portion of the site would likely flow east toward the unnamed stream and Beech Hill Swamp [15]. The 15-mile downstream surface water pathway for the property begins at the most upstream probable point of entry (PPE), located at the southern property boundary of the Beech Street Fireworks site, in an unnamed stream. The 15-mile downstream surface water pathway consists of the unnamed stream, French Stream, Forge Pond, Drinkwater River, Factory Pond, Indian Head River, and North River. The 15-mile terminus of the downstream surface water pathway is reached along the North River, approximately 0.25 miles downstream of the intersection of Cove Brook and North River [15-17; 39]. The entire Beech Street Fireworks site is located within an area classified as an area of minimal flooding; with the exception of the northeastern portion of the property, which is located within a 100-year flood zone associated with the Beech Hill Swamp [47]. The Flood Insurance Rate Map illustrates a Beech Hill Tributary in the northeastern portion of the property; however, START was unable to identify this surface water body on the topographic maps or aerial photograph [15; 47; 85].

There are no known potable surface water intakes located along the 15-mile downstream surface water pathway [25-29; 34; 72; 73]. The Drinkwater River, Factory Pond, Indian Head River, and North River, all part of the 15-mile downstream surface water pathway, are considered fisheries [74; 75]. The Drinkwater River; Factory Pond; and the Indian Head River, between Forge Pond and the Luddam's Ford Dam, are listed on the Massachusetts Department of Public Health Freshwater Fish Consumption Advisory List due to elevated mercury levels [75].

In August 1986, a surface water sample was collected from the "western and upgradient" portion of the Globe Rubber property (SW1) by an undisclosed party (Figure 3). The surface water sample was analyzed for VOCs only. Analytical results indicated the presence of chlorinated solvents ranging from 14 ppb of 1,1-DCA to 680 ppb of 1,1,1-TCA [58]. There was no further information provided regarding the 1986 surface water sampling.

In May 1987, four surface water samples (SW1 through SW4) were collected from an unknown area on the Beech Street Fireworks site by an undisclosed party. Analytical results indicated the presence

of four VOCs (with maximum concentrations noted in parentheses): 1,1-DCA (20 ppb); PCE (10 ppb); 1,1,1-TCA (260 ppb); and TCE (4.4 ppb) [58]. There was no further information provided regarding the 1987 surface water sampling.

During the early 1990s, as part of a Massachusetts Fish study, mercury was found in fish collected from Factory Pond (approximately 2.5 miles downstream of the PPE), which is part of the Beech Street Fireworks site 15-mile downstream surface water pathway, and from other downstream locations. In 1995, MA DEP collected sediment samples from Forge Pond, Factory Pond, and nearby streams. The sediment samples were analyzed for mercury and lead. Analytical methods were not documented in the available summary report. Lead and mercury were detected in the samples at varying concentrations. The maximum concentrations of lead and mercury detected in the MA DEP sediment samples collected from these water bodies were 4,200 ppm and 840 ppm, respectively [40, pp. 2-11, 3-22].

On 28 August 1991, ENSR collected one surface water sample from a "small pond" located downgradient of the "fill area", east of the Globe Rubber parcel, on the National Coating property. Reportedly, ENSR attempted to collect additional surface water samples from the property; however, the sampling locations were dry. The surface water sample was analyzed by NET Atlantic, Inc. of Bedford, Massachusetts. It is assumed by START that the surface water sample was only analyzed for VOCs. Analytical results indicated that no VOCs were detected in the surface water sample [51].

Based on the available data, surface water samples collected from the Beech Street Fireworks site have documented elevated levels of VOCs (including chlorinated solvents), and downstream surface water pathway samples have documented elevated levels of VOCs, lead, and mercury. To date, no sediment or surface water samples collected from the Beech Street Fireworks site are known to START to have been analyzed for other parameters, including perchlorate. In addition, sediment samples collected from the downstream surface water pathway associated with the National Fireworks I site between 1986 and 2002 have not been analyzed for perchlorate. Based on the limited data available, it is unknown whether sensitive environments located along the 15-mile downstream surface water pathway have been impacted from on-site sources.

Soil Exposure and Air Pathway

The number of employees working at businesses on the Beech Street Fireworks site is unknown to START. The nearest private residence to the Beech Street Fireworks site is located at 252 Beech Street, adjacent to the northwestern property boundary. There are no known schools or day-care facilities located within 200 feet of any potential source areas on the Beech Street Fireworks site [9]. The estimated population located within 1 and 4 radial miles of the Beech Street Fireworks site is 3,426 and 124,821, respectively [14].

START was unable to accurately determine the extent of pavement on the Beech Street Fireworks site during the off-site reconnaissance. However, START observed a paved road extending east from Beech Street into the Beech Street Fireworks site (Figure 2) [9].

On 7 January 1987, 10 test pits were excavated east of Globe Rubber by an unknown party. During the test pit operations, approximately 10 drums were unearthed. A soil sample was collected from each test pit. Analytical results indicated the presence of methylene chloride and 2-butanone in on-

site soil samples [58]. No further information regarding these soil samples was available to START. In November 1993, a release of less than 15 gallons of a "viscous phenol/formaldehyde resin" occurred at the National Coating property during the delivery of materials to the USTs located north of the on-site building. Red-stained soil was excavated and removed, and confirmatory soil samples were collected from the limits of the excavation. The soil samples were field screened with a PID for VOCs; and samples were composited and analyzed by American Environmental Labs, of Leominster, Massachusetts, for formaldehyde, methanol, and phenol. No VOCs were detected during field screening. Analytical laboratory results indicated the presence of phenol at 625 ppm. Additional soil samples were collected from the spill area during April 1994 and analyzed for phenols utilizing EPA Method 420.1. Analytical results of the 1994 samples indicated "none detected" levels in the soils. According to the Response Action Outcome Statement, groundwater was not encountered during excavation activities [77].

Based on the available data, soil samples collected from on-site locations have indicated elevated levels of VOCs. To date, no soil samples collected from the Beech Street Fireworks site are known to START to have been analyzed for other parameters, including perchlorate. To date, no known air samples have been previously collected from the Beech Street Fireworks site. Furthermore, START is unaware of any air sample analytical method for perchlorate.

OTHER POTENTIAL FIREWORKS/PERCHLORATE SITES IDENTIFIED

As part of the SOW for the New England fireworks/perchlorate SDs, EPA Region I requested that additional potential sites in EPA Region I identified during research conducted for the individual SDs be included in the SD Reports. Excluding National Fireoworks I (CERCLIS No. MAD980908842) and National Fireworks II (CERCLIS No. MAD980909675), START identified three additional potential sites in EPA Region I during research conducted for the Beech Street Fireworks SD. These three additional sites are summarized below.

Potential Whitman and Middleborough Fireworks Sites:

During file reviews for the Beech Street Fireworks site, two additional fireworks properties located within Massachusetts were discovered. START discovered a property deed dated 28 September 1940 between The Bay State Co. and National Fireworks, Inc. regarding an unknown-sized parcel of land located in Whitman, Massachusetts. National Fireworks, Inc. purchased a parcel of land located along the west side of New York, New Haven, and Hartford Railroad from The Bay State Co. [11].

In addition, START discovered a 1957 property deed between The Bay State Co. and National Fireworks, Inc. This deed noted that National Fireworks, Inc. purchased a "lot of cedar swamp land in the Town of Middleborough", in the Great Cedar Swamp, from The Bay State Co. on 25 September 1957 [10]. No further information regarding these former fireworks properties was available to START.

Potential Rockland Fireworks Site:

According to the EPA Site Assessment Manager, a former fireworks facility was suspected to have been located where the *Rockland Standard* newspaper operated along Grove Street in Rockland, Massachusetts. According to an employee in the Rockland Tax Assessor's Office, the *Rockland*

Standard operated out of Franklin Publishing Company, identified on Town of Rockland Tax Assessor's Map No. 45 as Lot Nos. 7 through 9. Currently, Lot Nos. 7 and 8 are owned by 65 Grove Street Realty Corp., and Lot No. 9 is owned by Mr. Scott M. Berner.

START researched the deed history to Lot Nos. 7 through 9; however, the Rockland Tax Assessor's Office only had post-1958 deeds available. Information on the property ownership history and use of Lot Nos. 7 and 9 prior to 1969 was not available in the records obtained by START. On 11 August 1969, Franklin Publishing Company purchased Lot Nos. 7 and 8 from Ms. Sadie Striar.

The property use for Lot No. 9 prior to 1958 was not available in the records obtained by START. Prior to 1958, Lot No. 9 was owned by the South Weymouth Savings Bank. On 7 July 1958, the property was sold to Mr. Douglas E. Hamilton. On 3 July 1974, Mr. Anthony Cavallini purchased the property from Mr. Hamilton; and on 3 May 1978, Franklin Publishing Company purchased Lot No. 9 from Mr. Anthony Cavallini.

START was unable to determine whether a former fireworks facility was located along Grove Street within the Town of Rockland, Massachusetts.

SUMMARY/CONCLUSIONS

The Beech Street Fireworks Area (Former) (Beech Street Fireworks) site is located at 254 Beech Street within the Town of Rockland, Plymouth County, Massachusetts. The geographic coordinates for the site, as measured from the entrance to the property along Beech Street, are 42° 06' 07.71" north latitude and 70° 54' 31.10" west longitude. The approximately 213-acre property is currently identified on the Town of Rockland's Tax Assessor's Map No. 72 as Lot Nos. 1 and 2, Map No. 73 as Lot No. 1, and Map No. 76 as Lot No. 2. The site is bordered to the north and south by private residences; to the west by Beech Street; and to the east by the Hanover and Rockland town border, and the National Fireworks II/Sevigny [Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) No. MAD980909675] site. The National Fireworks II site currently consists of Buckley Associates, Inc., Town of Hanover Conservation Land, and numerous residential properties, located in Hanover. The Beech Street Fireworks site is currently owned by National Coating Corporation, Globe Rubber Works, Inc., and the Trustees of Beech Hill Realty Trust.

Information on property ownership and use prior to 1907 was not available. The Beech Street Fireworks site changed ownership and was bought in various-sized parcels through numerous transactions from 1907 to the present. In 1940 and 1941, National Explosives, Inc. and National Fireworks, Inc. of West Hanover each purchased portions of the Beech Street Fireworks site. It is during this time that START believes fireworks operations began on the property. In 1942, National Fireworks, Inc. purchased the remaining portion of the site from National Explosives, Inc. START suspects National Fireworks, Inc. utilized the dirt roads that connected the Beech Street Fireworks site property to the National Fireworks II site located in Hanover, as illustrated on the 1941 Whitman, Massachusetts U. S. Geological Survey Quadrangle topographic map.

In 1946 and 1957, The Bay State Co. purchased a portion of the Beech Street Fireworks site and was granted the right to use the "right of way(s)" to and from the National Fireworks II site located along King Street in Hanover. On an unknown date between 1957 and 1959, National Associates purchased the Beech Street Fireworks site from National Fireworks, Inc. And on 10 November 1959, Clark-Babbitt Foods, Inc. purchased the property. Clark-Babbitt Foods, Inc; National Coating, Inc.; and National Fireworks Ordnance Corporation merged into the parent company, National Coating Corporation. Since the 1970s, National Coating Corporation has leased and sold portions of the property, including a 5-acre parcel to Globe Rubber Works, Inc. in 1976. Currently, commercial businesses operating on the property include National Coating Corporation; Globe Rubber Works, Inc.; and T & T Machine Products, as indicated on the commercial sign posted at the entrance to 254 Beech Street.

All or part of the following Massachusetts towns and cities are located within 4 radial miles of the Beech Street Fireworks site: Abington, East Bridgewater, Hanson, Hanover, Pembroke, Rockland, and Whitman. The location of the nearest private groundwater supply well is 900 Summer Street in the Town of Rockland, approximately 0.85 miles northeast of the approximate center of the Beech Street Fireworks site. START estimates that approximately 25,250 people are served by public and private water supplies within 4 radial miles of the Beech Street Fireworks site. Based on the available data, elevated concentrations of volatile organic compounds (VOCs), including chlorinated solvents, have been documented in on-site groundwater samples collected from the Beech Street Fireworks site since 1986. However, to date, no groundwater samples collected from the Beech

Street Fireworks site are known to START to have been analyzed for perchlorate. Based on the limited available data, potential impacts to nearby groundwater drinking water supply sources from on-site sources are unknown.

Surface water bodies located along the downstream surface water pathway for the Beech Street Fireworks site include the unnamed stream, French Stream, Forge Pond, Drinkwater River, Factory Pond, Indian Head River, and North River. Surface water samples collected on site have documented elevated levels of VOCs (including chlorinated solvents), and downstream surface water pathway samples have documented elevated levels of VOCs, lead, and mercury. To date, no sediment or surface water samples collected from the Beech Street Fireworks site are known to START to have been analyzed for other parameters, including metals and perchlorate. In addition, sediment samples collected from the downstream surface water pathway associated with the National Fireworks I site between 1986 and 2002 have not been analyzed for perchlorate. Based on the limited data available, it is unknown whether sensitive environments located along the 15-mile downstream surface water pathway have been impacted from on-site sources.

The number of employees working at businesses on the Beech Street Fireworks site is unknown to START. The nearest private residence to the Beech Street Fireworks site is located at 252 Beech Street, adjacent to the northwestern property boundary. There are no known schools or day-care facilities located within 200 feet of any potential source areas on the Beech Street Fireworks site. The estimated population located within 1 and 4 radial miles of the Beech Street Fireworks site is 3,426 and 124,821, respectively. Based on the available data, soil samples collected from on-site locations have indicated elevated levels of VOCs. To date, no soil samples collected from the Beech Street Fireworks site are known to START to have been analyzed for other parameters, including metals and perchlorate. To date, no known air samples have been previously collected from the Beech Street Fireworks site.

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ATTACHMENT A

PHOTOGRAPH LOG

PHOTOGRAPHY LOG SHEET
Beech Street Fireworks Area (Former) • Rockland, Massachusetts

SCENE: View of the eastern property boundary of 254 Beech Street [Beech Street Fireworks Area (Former) site] with Beech Street at right. Note the fence line along the property boundary. Photograph taken from the entrance-way to the site from Beech Street, facing south.
FRAME NUMBER: 1 **DATE:** 6 November 2003 **TIME:** 1317 hours
PHOTOGRAPHY BY: A. Miskiman **CAMERA:** Nikon CoolPix 3100

SCENE: View of the gated entrance to 254 Beech Street [Beech Street Fireworks Area (Former) site] with a business sign at right. Note proximity of the nearest private residence. Photograph taken from the entrance-way to the site from Beech Street, facing northeast.
FRAME NUMBER: 2 **DATE:** 6 November 2003 **TIME:** 1331 hours
PHOTOGRAPHY BY: A. Miskiman **CAMERA:** Nikon CoolPix 3100

PHOTOGRAPHY LOG SHEET
Beech Street Fireworks Area (Former) • Rockland, Massachusetts

SCENE: View of the business sign posted at the entrance to 254 Beech Street [Beech Street Fireworks Area (Former) site]. Photograph taken from the entrance-way to the site from Beech Street, facing northeast.

FRAME NUMBER: 3 **DATE:** 6 November 2003 **TIME:** 1332 hours
PHOTOGRAPHY BY: A. Miskiman **CAMERA:** Nikon CoolPix 3100